ARCTIC MEETING AT CHICKERING HALL,

JANUARY 31, 1878.

RECEPTION OF THE EARL OF DUFFERIN.

PAPER BY CAPTAIN HOWGATE,

ON HIS PLAN FOR THE EXPLORATION OF THE ARCTIC REGION.

ADDRESSES BY

CHIEF JUSTICE DALY, WILLIAM CULLEN BRYANT, BAYARD TAYLOR, LORD DUFFERIN, AND DR. ISAAC I. HAYES.

The objects of the meeting were the reception of the Earl of Dufferin, K. P., K. C. B., Governor-General of Canada, and the consideration of Captain H. W. Howgate's plan for the exploration of the Arctic. Among the prominent gentlemen upon the stage were Chief Justice Daly, Lord Dufferin, William Cullen Bryant, Paul B. Chaillu, Bayard Taylor, General George W. Cullum, Professor T. Sterry Hunt, Albert Bierstadt, Professor W. Wright Hawkes, Walton W. Evans, Francis A. Stout, Colonel C. Chaillé Long (Bey), Chief Justice Curtis, Harlow M. Hoyt, Professor James T. Gardner, Luther R. Marsh, Samuel Sloan, William Remsen, Lieutenant Greeley, and Colonel William Ludlow, U.S.A.

The formal business of the meeting having been disposed of, Chief Justice Daly said: I have great pleasure, in behalf of the Council of the Society, in reading the following resolutions:

Resolved, That the American Geographical Society extends to Mr. Stanley its cordial congratulations on the successful completion of his trans-African journey, attended as it was with so much peril to himself and followers, and so fruitful of valuable geographical results.

Resolved, That the four journeys of Mr. Stanley, in Africa, are so intimately associated with the liberality and enlightened action of our Fellow, James Gordon Bennett, Esq., that this Society cannot forbear to express its appreciation of his great services to geographical science.

Ordered, That the foregoing resolutions be placed on the record, and copies be transmitted to Messrs. Henry M. Stanley and James Gordon Bennett.

The resolutions were adopted without a dissenting voice.

JUDGE DALY'S ADDRESS.

Judge DALY then said:

The Society is convened, ladies and gentlemen, to consider Captain Howgate's plan for the exploration of the arctic region, and it is most appropriate to this polar evening that we have united with it the presence of his Excellency the Earl of Dufferin, Governor-General of Canada—himself a traveler, and author of one of the most sprightly and pleasant books that has ever been written upon traveling in high latitudes. [Applause.] Captain Howgate's plan will be laid before you. It will be explained in his own words, and I shall, therefore, make but a very few remarks in answer to a question that has been constantly put to me--"Why should we try to reach the north pole? Why send out costly expeditions involving peril to life and property when we all know that the approach to the arctic zone is surrounded by insurmountable barriers?" If it involved nothing more than the feat of reaching the pole it would be very difficult to answer such questions; but the general answer to them is that there is no portion of the earth's surface where observations in respect to scientific matters affecting the whole globe—every part of it—are so important as in the polar basin or its vicinity. The tremendous forces which are there at work, and which are the cause of the difficulty of exploration and observation, are physical phenomena that it is most important to observe and study. They have to do with the winds, ocean currents, magnetic influences and numerous other questions of the most practical nature in their application and in the results to which they lead. The amount of knowledge which has been discovered in this world by accident is small in proportion to that which has been the result of previous investigation; for what frequently is accident in its immediate discovery has been brought about by, or was the consequence of, previous inquiry. Our time this evening will not admit of any detailed statement of the numerous scientific subjects upon polar exploration which will shed light; and it is less necessary, as Professor Loomis, of Yale College, Dr. Hooper, of London, and the late Admiral Sherard Osborn have not only elaborately enumerated them, but have explained why they must be studied in the polar region, where nature

is at work on the grandest scale. There, and there only, in all probability, will the key be found to unlock these mysteries, especially in respect to the laws of one of the most important and universal of them, at least as it affects our globe—magnetism. All know that magnetism is a polar force, that it directs the needle which guides the seaman over the ocean, that it pervades everything upon and around our earth; but it is only the scientific man that knows the innumerable difficulties that beset the investigation of its laws and how important to the world is a thorough knowledge of those laws. But when you propose to get up expeditions for the acquisition of scientific knowledge, there are many minds that want to know in advance what the exact practical result will be, and they are apt to exclaim, "Well, what's the use of it?" The best answer ever given to this query was that given by Dr. Franklin when, by the very simple experiment of flying a kite, he had made the important discovery that the phenomenon which the Greeks obtained by rubbing pieces of amber, and which was then known under the general name of electricity, was one and the same thing with the lightning. He was one day asked, "Well, what is the use of your discovery?" Franklin's answer was this: "What is the use of a child? Make it of use."

When Franklin had taken this first step toward harnessing the lightning, bringing it under our control and adapting it to the uses of man, his discovery was, from a scientific point of view, as he expressed it, a child. To-day, in connection with the telegraph, it has made Puck's boast to put a girdle round the world in forty minutes a reality. If the questioner could have been told then that ninety-two years afterward the scientific child of Franklin would be turned into a means by which a merchant in Philadelphia, upon coming to his counting-room in the morning, could inquire in Bombay or Canton what was the market price that day of tea or silks, and, receiving a reply, could give his orders for purchases to be made in those distant places before he went to his home in the evening, the gentleman would have appreciated the significance of Franklin's remark, "Make it of use." The most ordinary things in our present civilization owe their origin to what in their day was scientific information, and they are due to the close observation and patient labors of men who could not themselves have predicted the great results that followed their researches.

Having thus, ladies and gentlemen, very briefly stated the object —the generous object—of continuing exploration in the Arctic, it affords me very great pleasure to introduce to you Lieutenant Greeley, of the United States Army and of the Signal Service Bureau, who is to accompany Captain Howgate as one of his officers in the proposed expedition, if it shall be sent.

Captain Howgate not being present, the manuscript of his plan for polar discovery was read by Lieutenant Greeley, U.S.N., in the following language:

PLAN FOR THE EXPLORATION OF THE ARCTIC REGIONS.

The plan of arctic exploration and discovery, in furtherance of which I have the honor of appearing before you this evening, is one to establish a colony of hardy, resolute and intelligent men at some favorable point on or near the borders of the polar sea, and, providing it with all modern appliances for overcoming the physical obstacles in the pathway to the pole, and for resisting the effects of hunger, of cold and of sickness, to deprive it of the means of retreat except at stated periods of time. The location selected as the site of the proposed colony is on the shore of Lady Franklin bay, near the seam of coal found by the "Discovery," of the English expedition of 1875.

The idea of establishing such a colony is not a new one, as it was advocated by Dr. Hayes as far back as 1862, and has since that date been approved by this Society and by the action of foreign societies and explorers. This fact accounts, in great part, for the almost unanimous support with which the so-called Howgate plan has been received.

The results of the last English expedition, and modern improvements in means of locomotion and communication, render it possible to reside farther north than in the earlier days of arctic exploration, when sailing vessels were used.

The expedition of Captain Hall in the "Polaris" in 1871, and of Captain Nares in the "Alert" and "Discovery" in 1875, have shown that, by the use of steam, it is a comparatively easy matter to reach the entrance to Robeson's Channel, in latitude 81° north, and that the serious difficulties to be overcome lie beyond that point. Parties from these two expeditions have made fair sur-

veys 140 miles north of this point, leaving about 400 miles of unexplored region between it and the goal of modern geographers—the pole.

When Captain Hall reached the upper extremity of Robeson's channel, the lookout of the "Polaris" reported open water in sight, and just beyond the pack which surrounded the vesssel and impeded further progress. This open water was afterwards seen from the cape at the northern opening of Newman's bay; and it was the opinion of the crew of that ill-fated vessel that if she had been but the fraction of an hour earlier in reaching the channel they could have steamed unobstructed to the pole itself, or to the shores of such lands, if any exist, as may bound the so-called open polar sea. We know that they did not succeed, but were forced to winter almost within sight of this sea, and subsequently, disheartened by the loss of their gallant commander, abandoned the enterprise.

Where this open water was found, Captain Nares, in 1875 and 1876, found solid, impenetrable ice, through which no vessel could force its way, and over which it was equally impossible for sled parties to work.

These facts appear to show that within the arctic circle the seasons vary as markedly as in more temperate southern latitudes, and that the icy barriers to the pole are sometimes broken up by favoring winds and temperature. To get further north, or to reach the pole, prompt advantage must be taken of such favoring circumstances; and to do this with the greatest certainty, and with the least expenditure of time, money and human life, it is essential that the exploring party be on the ground at the very time the ice gives way and opens the gateway to the long-sought prize, fully prepared to improve every opportunity that offers.

The permanent colony should be furnished with provisions and other necessary supplies for three years, and should consist of at least fifty selected men mustered into the service of the United States, three commissioned officers and two surgeons; all to be selected with a view to their especial fitness for the work—young, able-bodied, resolute men, who can be depended upon to carry out instructions to the extreme limit of human endurance. An astronomer and two or more naturalists—to be selected by the National Academy of Sciences, and to work under instructions from that

body, but subject to such general supervision and directions from the head of the expedition as is customary at all posts in charge of an officer of the United States—should accompany the expedition. One or more members of the regular force should be competent to make meteorological observations, and to communicate by telegraph and signals whenever such communications become necessary. An annual visit should be made to the colony to carry fresh food and supplies; to keep the members informed of events occurring in the outside world, and bear them news and letters from anxious relatives; to bring back news of progress made and of a private character to friends; also, if necessary, to bring back invalided members of the expedition and carry out fresh colonists to take their places. In this way the *morale* of the colony would be maintained, and the *physique* of its members kept constantly at the maximum; and the knowledge that this annual visit would be made would do much to alleviate the discomforts of the long arctic night and the feeling of isolation so graphically described by arctic explorers.

Captain Hall spent eight years among the Esquimaux, and each year found himself better fitted to withstand the severity of the arctic circle, and the colony would, it is believed, in like manner become acclimated, and eventually succeed in accomplishing the long-sought end.

With a few strong, substantial buildings, such as can be easily carried on shipboard, the members of the colony could be made as comfortable and as safe from atmospheric dangers as are the men of the Signal Service stationed on the summits of Pike's Peak and Mount Washington, or the employés of the Hudson's Bay Company, stationed at Fort York, or elsewhere, where a temperature of 60° below zero is not uncommon.

A good supply of medicines, a skillful surgeon and such fresh provisions as could be found by hunting parties, would enable them to keep off scurvy and maintain as good a sanitary condition as the inhabitants of Godhaven, in Greenland. Game was found in fair quantities by the "Polaris" party on the Greenland coast, and by those from the "Alert" and "Discovery" on the mainland to the west, especially in the vicinity of the last-named vessel, where fifty-four musk oxen were killed during the season, with quantities of other and smaller game. The coal found by the "Discovery's"

party would render the question of fuel a light one, and thus remove one of the greatest difficulties hitherto encountered by arctic voyagers.

There seems to be little doubt that Lady Franklin bay can be annually reached by a steam vessel, as Captain Hall went as high as Cape Union, between latitude 82° and 83° with the "Polaris," and Captain Nares still higher with the "Alert." It is possible that the last named point may be reached with the vessel, in which case coal and provisions could be deposited there to form a secondary base of operations for the exploring party. If this latter can be done, the road to the pole will be shortened by about ninety miles in distance, and three weeks or more in time—two very important items. It should be clearly understood that the only use to be made of the vessel which it is hoped to obtain from the Government is in the transportation of the men and supplies to the location of the colony. When this is done, the vessel will return to the United States and await further instructions. To the expeditionary corps brought from the United States should be added a number of Esquimau families to serve as hunters, guides, &c., and also an ample number of Esquimau dogs, so indispensable for sledging and so useful as food when their capacity for work is gone.

The colony should be kept under the strictest discipline, and to this end should be formally enrolled in the military service, save, perhaps, the strictly scientific members. By discipline only can such control be exercised as will be indispensable to the successful prosecution of the work. One cannot read without pain the account of the "Polaris" expedition, where the bonds of discipline, only too loose before Hall's untimely death, were entirely relaxed after it. The first in command of the new expedition should be a man able not only to gauge men, but to control them, and the second should be like unto him. Enthusiasm and energy are desirable, but coolness of temper, firmness of rule, persistency of purpose, and a well-balanced mind, fertile in resources and expedients, are indispensable to success.

The outfit of the expedition should include, among other things, an ample supply of copper telegraph wire, to connect the colony at Lady Franklin bay with the subsidiary depot at Cape Union, and thence northward, as far as practicable. Copper wire is strong, light, flexible, and a good conductor, and can be worked while lying

upon the dry snow or ice without support. The necessary battery, material and instruments should be taken to equip the line, and the battery left permanently at the bay station, where, fuel being abundant, it could be kept from freezing. A special form of instrument has been devised for the expedition, by which the use of battery is dispensed with entirely, and it is possible that the recently discovered telephone may be applied to advantage. It should certainly form a part of the outfit. Much attention has been given to the possible use of balloons as a means of observation and perhaps of exploration. I am now in correspondence with distinguished aeronauts in this country and in France upon the subject, and a series of experiments has been instituted to determine the practicability of obtaining a suitable material for the covering of the balloons that will resist low temperature. Here, as elsewhere, the coal mine plays an important part, as by its aid the necessary supply of gas can be readily and quickly procured.

A few sets of signal equipments, such as are used in the army Signal Service, would also form an important part of the outfit, and all of the men should be instructed in their use, and in the signal code. Thus provided with means of communication, parties could move forward with confidence, as they would be able, when necessary, to call upon their comrades, who remained behind, for advice or assistance. The existence of coal at the "Discovery's" winter quarters determines the question of colonization and the location of the colony as a means of polar exploration; and the Nares expedition would have been a success if it had done nothing more than this. The failure of his admirably equipped expedition to reach the pole is, in a great measure, attributable to the abnormally cold season and the exceptional character of the winds, which had resulted in the formation of ice ridges running across the line of march, thus making progress difficult, slow and dangerous. It is reasonable to suppose, from past meteorological records, that these unusual conditions will not exist during the present season, and, indeed, may not occur again for several years. Instead of discouraging further effort, the result of Nares's expedition, from the causes named, should stimulate fresh endeavors, and hold out a fair prospect of success. In any event, the little colony on Lady Franklin bay during their three years' residence, besides having the opportunity of selecting an open season, and becoming thoroughly hardened and

acclimated, would have their work narrowed down to a common focus—the pathway due north. The work of the Nares expedition clears the way for the final solution of the arctic problem.

To carry out the plan thus briefly sketched, it is desirable to secure the use of a government vessel, and, inasmuch as its object is one of national interest, such other government aid as might be necessary and proper; and, accordingly, a bill to "authorize and equip an expedition to the arctic seas" was introduced in the House of Representatives on January 8, 1877, by Mr. Hunter, of Indiana, and referred to the Committee on Naval Affairs, from which it was favorably reported by Mr. Willis, of that committee, February 22, 1877. In the Senate the same bill was introduced by Mr. Dawes, and referred to the Committee on Naval Affairs, February 9, 1877. The pressure of other and more important business then occupying the attention of Congress and of the nation, prevented further action during the session, which closed on the 3d of March last. The subject was found, however, to be one of national and universal interest, and received the hearty commendation and support of former arctic explorers, of geographers, and of men eminent in the several walks of science, among whom I may name the distinguished President of this Society and the Hon. I. I. Hayes, both of whom have from the first given me their warmest encouragement and the benefit of their wide experience. Professor Joseph Henry, of the Smithsonian Institution, Professor Elias Loomis, of Yale College, President Potter, of Union College, Admiral Porter, of the Navy, the then Secretary of the Navy, and most of the officers and crew of the "Polaris," with many others, have given the weight of their names and influence in support of the enterprise in this country, while abroad I have abundant evidence of interest from members of former expeditions, notable among whom are Dr. John Rae and Captain Kennedy, of English fame, and Lieutenant Payer, of the Austro-Hungarian expedition.

As practical evidence of the interest felt in the subject in this country, a number of public-spirited and generous citizens, among whom, it is a pleasure to state, those of this city occupy the foremost place, having faith in the success of the Colonization plan as a means of arctic exploration, and believing in its ultimate approval by Congress, contributed from their private means a sufficient sum for the purchase and outfit of a small vessel to be sent to the Arctic

seas for the purpose of collecting such supplies during the ensuing winter as might be useful for the main expedition of 1878, if that expedition should be authorized. It was at first intended to limit the mission of this vessel to the collection of material only, but the opportunity for scientific investigation was so inviting, and the added cost incurred thereby so very trifling in comparison with the results to be attained, that space was made on board for two observers and their necessary apparatus. One of these observers was selected on the recommendation of Professor Elias Loomis, of Yale College, and instructed to pay especial attention to meteorological phenomena, while the other was selected as naturalist of the expedition by Professor Spencer F. Baird, of the Smithsonian Institution, from whom he received special instructions.

This vessel, the "Florence," sailed from New London August 3d, with a crew of thirteen men, all told, commanded by Captain Tyson, of "Polaris" fame, and reached the head of Cumberland gulf on September 13, where she has gone into winter quarters. Captain Tyson's instructions are to collect such supplies as his experience shows to be necessary for the use of the future colony; to join the vessel carrying the members of the colony at Disco next August; and in the event of its non-arrival to return to the United States.

There is reason to hope, from the knowledge and attainments of the two scientific gentlemen accompanying the "Florence," that the little vessel will, on her return, add no small quota to our knowledge of arctic cosmogony and phenomena. But however that may be, her loss or safety must remain a closed book to us for many months to come. What perils she may meet, what dangers dare, what obstacles overcome, we can neither know nor forecast, but she and her gallant crew are none the less in the hands of Him who rules the ice-bound waste as surely as He rules this crowded city, without whose paternal knowledge not even the sparrow falls.

To guard against possible delay, in the event of Captain Tyson's failure to reach Disco at the proper time, or without proper supplies, the Danish government has been requested to delay the shipment of furs from that point until the middle of August, in order that a supply may be purchased from that source if necessary.

As soon after the opening of the present session of Congress as practicable, the bill to authorize the expedition was offered in the Senate and House of Representatives, and in both referred to the

Naval Committee. The House Committee, through Mr. Willis, of New York, who from the first has been an active friend of this measure, has renewed its favorable report of last session, and the bill is now awaiting the final action of the House upon it. From the Senate Committee I have the assurance of a favorable report. Senators Sargent and McPherson, having immediate charge of the bill, have exhibited a gratifying interest in its success, and it is reasonable to hope for its final passage.

In Paris, M. de Fonvielle, who is well known as an accomplished aeronaut and man of letters, is making a series of balloon experiments for the benefit of the future colony, in the foundation of which he takes a lively interest, and the French Geographical Society, at its last regular session, formally expressed its approval of the plan. The Bremen Geographical Society, through its Secretary, Dr. Lindeman, had previously expressed a similar approval, and everything seems working favorably toward the accomplishment of the desired end; even the mighty forces of nature and the changeful seasons appear to labor for the success of the expedition, for the present winter, of such unprecedented mildness, will undoubtedly retard the formation of ice in the polar basin, and leave a freer passage for the colony next summer up Baffin's bay to Kennedy and Robeson's channel. The great veteran explorer, Professor Nordenskjöld, and the favorable reports which he brings back with his expedition just returned, with the wonderful voyage of Captain Wiggins from the mouth of the Yenessei along the Siberian coast and through the Kara sea, all demonstrate that the open season has unsealed the ice of higher latitudes, and points to a favorable northward passage during the coming summer.

I have not touched this evening upon the vast interest to science which polar expeditions represent, and the important questions which they alone can solve, nor upon the geographical theories and arguments in support of the different routes that might be followed, preferring to leave the settlement of these subjects to more competent hands. The noble Earl who honors us with his presence this evening, and who has won distinction in arctic fields as well as in those of statesmanship, and Dr. Hayes, whose triumphs as an explorer have been supplemented by those accorded to the successful legislator, can tell us with the graphic tongues of eyewitnesses the wonders of the strange lands we seek to colonize, and whose hidden

secrets we seek to solve ; for both have watched the colossal or fairy shapes of mountainous icebergs with their changeful play of hues under the midnight sun, or the mighty arch of the aurora, with its trailing fringes of incandescent colors spanning through the long night of arctic winter the mystic sea of ice and silence. Their presence, and that of the other distinguished gentlemen who are announced to address us, and whose names are as familiar as household words wherever the English language is known or spoken, I hail as an augury of success, and I heartily join with them and you in doing honor to the name and achievements of our countryman Stanley, in penetrating the wilds of Africa. There is no city throughout the whole broad Union more suitable for such a meeting as the present—a city where the memory of Grinnell, the great and public-spirited merchant, is still green, and where so many others, their hearts as generous as their means were large, have given freely of their store to aid in arctic discovery.

All that is needed, in addition to the money asked for to equip the expedition, is the authorized use of one of the idle vessels and its crew to serve as a transport for the colony to the scene of action —making one voyage each year—and the authorized employment on this duty of fifty persons, whose compensation is already provided for in the several departments from which they would be detailed, and from which they could be spared for the required period without detriment to the public service.

In view of the great value of the geographical and other scientific results to be reasonably hoped for from such an exhibition, it does not seem that there should be any hesitation in acting favorably upon the subject, and at an early date.

Very respectfully,

Your obedient servant,

H. W. HOWGATE.

Remarks by WILLIAM CULLEN BRYANT.

At the conclusion of this paper Mr. William Cullen Bryant was next introduced by Judge Daly, and said:

I take for granted that no very direct commercial advantages are expected from exploring the region to the north of that domain over which the honored guest of the evening exercises the vice-regal power, nor that even the enterprise of Dr. Hayes, fertile as he is in expedients and hopeful in temperament, is likely to find in that quarter a safe and practicable path to the coast of northeastern Asia. But while commerce withdraws from the undertaking, science comes forward and takes upon herself the office of discovery. While one party of explorers are penetrating to the heart of the African continent, and threading the rivers and measuring the lakes that stagnate under the equator, we are to send out from this quarter a party to the arctic circle, where human life can exist only through a constant battle with the elements—a party to establish an outpost in what we may call the enemy's country—a post of observation from which science may make excursions and gather facts for future use. What we are about to do may be compared with the conduct of one who inhabits a palace, and who, after taking an inventory of the lower rooms, resolves upon ascending to the attic and seeing how the rooms in that quarter are furnished.

It is hardly worth while to discuss beforehand what will be the value of the observations about to be made by science in the region of which I speak. Small beginnings in science often lead to great results. He who first observed the properties of the loadstone, who saw it attracting the particles of iron from loose sand and clinging to rocks that contained iron ore, could have had no idea of the vast and almost immeasurable advantage which the navigator of the sea would derive from it when it should be applied to his use in the mariner's compass. When the laws of the electric fluid were first investigated, who was there that thought of the wonderful uses to which it might be put when tamed and taught to carry messages from pole to pole with the speed of light, and even to repeat the words and musical tones uttered over the wires on which it was running? Who thought that it could be taught to write, or to speak, and sing? * * *

So will it be, perhaps, with the discoveries made by those who observe the aspects and agencies of nature within the arctic circle. The mystery of the magnetic pole is to be solved. The phenomena of the atmosphere and of light in that region are to be observed and recorded. The beautiful meteor called the northern lights is to be observed in its birthplace and made to disclose its causes. The individuals of the animal and vegetable kingdom, such as exist in the waters or on the coasts of that desolate region, are to be made the subjects of familiar observation, and every particular relating to them duly recorded. What will yet be done with the facts thus gathered? Who shall say to what conclusions they may lead, or what secrets of nature they may open up to our view? It is said that necessity is the mother of invention, but quite as true is it that knowledge supplies invention with its materials, and that without knowledge invention only gropes and stumbles in the dark.

Remarks by BAYARD TAYLOR.

At the conclusion of Mr. Bryant's remarks, Mr. Bayard Taylor was introduced and spoke as follows:

I have been requested to discharge the honorable duty of calling the attention of the members of the Geographical Society to the presence here, this evening, of a gentleman whose distinguished position is not the only stamp of his many abilities. As the executive head of the great Dominion which nobly emulates us in carrying an unbroken belt of civilization from sea to sea, the Earl of Dufferin has a special claim to our welcome. In a political sense, we acknowledge him as the best of neighbors; and certainly no one of his predecessors has ever so frankly and cordially mingled with us in a social way. On this occasion, however, it is proper that I should chiefly dwell upon those qualities of his mind and those features of his experience which claim recognition from this Society. When we welcomed Dom Pedro II., a year and a half ago, it was not the monarch alone whom we received; it was also, without doubt, the most energetic and untiring traveler of this or any other age. Lord Dufferin is the only Governor-General who has personally visited every settled portion of the Dominion; and, in order to

accomplish this, he has rivalled the Emperor of Brazil in the extent of his journeys, without going outside of Canadian soil. He has been trained, by his former travels in the far North and the Orient, to appreciate the vast difference between hearsay and personal knowledge—a difference which enters into the secret of successful political rule. The power of observing clearly, correctly and rapidly —I might almost call it the perceptive instinct—is not an ordinary gift; but it is one which Lord Dufferin possesses in an eminent degree. When I visited Iceland in the Summer of 1874, my first impressions of the scenery immediately recalled his descriptions to memory. The transparency of the atmosphere; the exquisite effects of color; the faint, delicate, and, as he truly says, "gem-like purity" of the mountain outlines, were all there. No previous traveler mentions them—yet they are the leading characteristics of Iceland scenery. There can be no better test of description than the fact that the objects themselves suggest the author's words. During the same voyage Lord Dufferin passed beyond the field of travel, and fairly entered that of exploration. He is the only one present to-night who has seen Spitzbergen and Jan Mayen's Land; in fact, he is one of some half-dozen living men who have landed on Jan Mayen's Land, and stood on the base of that wonderful peak, nearly 7,000 feet in height, which feeds the lonely sea from its five broad torrents of descending ice. It is fitting that we should tender to him such appreciation as lies in our power; and I therefore move, Mr. Chairman, that His Excellency the Earl of Dufferin, Governor-General of the Dominion of Canada, be elected an honorary member of the American Geographical Society.

Speech of LORD DUFFERIN.

Lord Dufferin was unanimously elected an honorary member of the Society. He said:

In rising to respond to the very kind observations which have been made in my regard upon this occasion, I confess that my mind is disturbed by conflicting considerations. On the one hand, I feel I have not the least professional right or title to intervene

in the present occasion. On the other, I should be very sorry if I had not an opportunity of expressing to you how very deeply I feel the kind reception which has been extended to me on the present occasion. It is true some years ago I sailed toward the north and got as near to the pole as Washington is to Ottawa, but my voyage was as fruitless as the journey of the Peri to the gates of Paradise, and it had but a single feature in common with more serious explorations, namely, that I had to turn back again. But neither, indeed, was that journey of any use to science, nor was it fertile in personal adventures. All that I can claim is that I was able to establish the temperature of the sea in a certain section of the Arctic ocean which had never been explored by any vessel.

But at all events there is one capacity in which I feel I have a right to claim admission to these halls, and that is as a member of the great Geographical Society of London. Now we all know that geographers are brothers all the world over. To a geographer these lines of ethnological and political demarcation which divide nations do not exist. All countries to him are what Italy was once described as being—merely geographical expressions. The only heroes to whom the geographer gives a place upon his roll of fame, the only careers which he admits upon his calendar, are those noble spirits who, generation after generation, have braved privation and faced danger and even death in order that they might advance the cause of science, and point the way to their fellow-men to those secret lands and unknown regions of the earth which God has prepared from everlasting for the habitation and advantage of the human race.

It is, therefore, ladies and gentlemen, as a brother geographer only that I venture to address you, and I can assure you that we in England duly appreciate the efforts which have been made by this Society for the advancement of geographical knowledge. And we fully comprehend that if in any place on the face of the earth enterprise should be regarded and honored, it is on that continent that owes its discovery and its present glorious condition to the enterprise of the greatest navigator that ever furled a sail or took a bearing. Nor is it in the least necessary that I should assure you that the names of those navigators whom America has sent forth—the names of Kane and Hayes and Hall—are as familiar, and are as completely household names to us as are those of Franklin,

McClure and Belcher among you. And I am proud to think that the two great representatives of the Anglo-Saxon race have been so intimately associated in a common endeavor both to explore the mysteries of the Arctic ocean, and, as I may now add, the resources of central Africa.

But I feel that it is not in that capacity that I am really among you to-night. You will all remember that when Columbus, to whom I have referred, returned from his great discovery, he brought back with him, in chains, certain of the chiefs of the nations with whom he had come in contact, both as proofs of the truth of his narrative, and as specimens of the strange nationalities he had discovered. Our discussion to-night has been concerned with those snow-covered lands which lie beneath Arcturus, and are lighted with the radiance of the aurora. And I do believe that, if I am paraded before you to-night, it is because my friend, Judge Daly, wished to show to you a potentate whose sceptre touches the pole, and who reigns over a larger area of snow than any other monarch of the earth. [Laughter and applause.] But, ladies and gentlemen, here the comparison concludes, for you all remember that as soon as these unfortunate prisoners were brought into the presence of the gentle Queen, Isabella, she commanded their fetters to be struck from their limbs; but the fetters with which I am bound here have been forged by the kindness and hospitality and consideration of the American people wherever I have traveled through the States, and I fear that even your imperial mandate would fail ever to lose those chains.

Remarks of Dr. HAYES.

Dr. Isaac I Hayes, the arctic explorer, having been called upon, said he ıd given proof of interest in the meeting by coming from an Arctic region, in other words, Albany, to attend it, but did not wish to be held responsible for the arctic storm which he had brought along with him. "I have been asked to take part in the proceedings—I don't know for what purpose, but that the President of the Society has kindly informed you that, if possible on my part, I am to enlighten you somewhat as to the geography of the North, and without wasting words or time in this connection, I will—since

I see we have a map here in front of you—invite your attention to a few geographical points, in order that you may be able the more clearly to fix in your minds the direction, the purpose, and the condition of Arctic geography at the present time.

"Now, this map explains itself; the centre of it representing the North Pole, around which is the Arctic sea, or polar basin—that great basin, bounded on the one side by the northern coast of Asia, and on the other by this great area, over which our kind friend, his Excellency the Earl of Dufferin, reigns with such satisfaction to us and to his people.

"It was my purpose to follow the track of Dr. Kane, and make my way westward, and follow that along northward, confident that I would be able to break through the ice reach, and cross the open polar sea. Now, I need not tell you I did not accomplish all that; but I did succeed, as Dr. Kane did before me, and I with him, in reaching the mouth of Smith sound; wintered there, as he had done before me, and near by latitude 82° looked out upon the open polar sea. Captain Hall, in 1872, had steam power, and made his way to latitude 82° 16′, some sixteen or twenty miles further than I had reached with my dogs and sled. In the same direction also followed Captain Nares, of the Royal Navy. This expedition reached the western side of Smith sound, and Lady Franklin bay and Grinnell Land, but up to that time I was the only man who had set foot upon those dreary wastes."

Doctor Hayes then pointed out upon the map various places of interest in connection with arctic exploration, and traced the routes pursued by many leading expeditions. Beginning with a brief reference to the voyages of the Icelanders and Northmen in the tenth century, he passed on to the first real voyages of exploration, which were made by the Cabots towards the close of the fifteenth century, when they entered Davis strait in their endeavor to find a northwest passage to Cathay. The efforts of the brothers Cotereal, and of the unfortunate Sir Hugh Willoughby, who perished while attempting to find a passage to the northeast in the beginning of the following century, were the subject of passing mention, and the speaker took up the first expeditions on which scientific investigations were made a leading object. These were the voyages of Frobisher, who discovered the entrance to Hudson's bay, and those of Sir Humphrey Gilbert and of Davis. Dr. Hayes

pointed out the track pursued by the unfortunate Barentz, the Dutch explorer, who perished while searching for a northeast passage. The voyages of Henry Hudson, who, in the beginning of the seventeenth century, was peremptorily ordered to "go to the north pole," received only a glance, as the speaker remarked that his audience was already familiar with the history of the bold navigator who discovered the great river which bears his name. Baffin came in for a share of the speaker's attention, as did also the exploits of Behring and other Russian explorers, including their famous sledging expeditions. The routes pursued by English explorers in the last century were carefully traced, and their theories discussed from the standpoint of Dr. Hayes's own experience. In this connection occurred the names of Phipps, Cook, McKenzie, and others. Coming to our own day, the speaker dwelt at greater length upon the expeditions of Ross, Franklin, Parry, Buchan, Belcher, McClure, Kane, and Hall; and finally reached the proposed expedition of Captain Howgate. He was asked every day, he said, whether he thought the plan of Captain Howgate a practicable one. In answer to this query, he most certainly answered in the affirmative. That he favored such a plan was known to many present, who heard him advance it before the Society many years ago, and before Captain Howgate's name was known in connection with it. Referring to his own latest expedition, Doctor Hayes continued:

"One of the vessels penetrated to 83°. From that point expeditions were sent to the northwest and east, and these most remote lands—the northernmost lands on the globe—were marked out. I have always firmly believed and contended that about the pole we will find an open sea—a vast area of water, which, in consequence of the continual intercommunication between the waters of the equator and the pole, maintains a general uniform temperature, varying from thirty-four to thirty-six degrees. Everywhere throughout the waters of the earth this prevails, the surface water only reaching a high temperature, sometimes on the equator reaching as high as 88°, and in the arctic regions a temperature not lower than 29°. Even with the lowest temperature we found the waves rolling as wildly as in the Atlantic. Water does not freeze unless quiet. I have in these northern seas seen the waves tossing freely, and without any ice found, when the temperature was 50° below zero. But when the tide and winds were stilled, and the surface

became calm, it was almost instantly covered with ice, so that you could walk safely where a few moments before was a tossing sea.

"But I did not intend to discuss the question of an open polar sea here. I will, however, remark that were it not for that wise provision of nature by which there is this equalization of temperature, which we might say was caused by the arterial circulation of the waters, that great area about the pole would be but one vast glacier. But it is not so; the water is never cold except upon the surface. At a certain depth it preserves a uniform temperature over the whole world.

"It is the intention of Captain Howgate to fit out an expedition to penetrate into these mysterious waters. Whether he shall find it an open sea remains to be seen; but if he does, it is proposed that he shall be provided with boats and ships fitted for the navigation of those waters. He will, on the other hand, go provided with sleds in case he shall find a sea covered with ice where Dr. Kane and myself found open water, and where Captain Hall found a great deal of open water; and I believe if the "Polaris" could have been pushed through the belt-ice and the waters around, the pole could have been navigated.

"Let me pause here a moment to analyze these conflicting reports from the same locality. I do not believe in any such thing as a palaeocrystic sea, as reported by Capt. Nares. Vast masses of ice are formed and gather in connection with the land. They may be called floating glaciers, and they are crowded by the winds and currents of the sea down upon the land, as the winds may prevail in one quarter for a long time. I believe that the barrier of ice which presented itself to Captain Nares was simply the result of a succession of gales which, lasting a long time, had crowded the ice down upon Greenland and Grinnell Land. It is the same condition of ice that I found upon the northern coast of Greenland in the Kane basin. Again, in 1868, when I presented the plan to you of polar colonization, I suggested that there should be sent out two vessels—one of them a sailing vessel and the other a steamer. These two vessels should make their way through the icy barrier of Baffin's bay to the mouth of Smith sound. It was there I passed the winter of 1860–1. We were able there to capture some 250 reindeer during the summer, and both sea and air were teeming

with animal life. It seemed to me to be a place where men could live safely and comfortably enough.

"There were vast beds of turf there, which would serve for fuel. We subsisted entirely by hunting, and had all that was needful to give us a comfortable variety. We subsisted upon the products of the region like the natives who dwell there. At this point upon Smith sound, then, I proposed to plant a colony, to land a sufficient number of men, and take with them from the southern part of Greenland some Esquimaux, with dogs and the paraphernalia of hunting, and let them seek game in the valleys. They would find seals and bears in the winter time, and wolves, which abound there. Thus they could obtain means wherewith to maintain the expedition.

"Now, this is a skeleton of what I presented to the Society many years ago, and urged upon its attention. But in order to carry out this plan there is one essential qualification, and that is, the place where the colony is founded must be as certainly accessible as Liverpool; and that position we have at the mouth of Smith sound. I regard Smith sound approachable with almost as little risk and danger and as great certainty as England, during any summer. To be sure, vessels have been caught in the "ice pack;" but it was while pursuing the long-exploded custom of hugging the land-leads, holding on to the shore-ice, and keeping inside always. I claim to be the first one to break away from that custom. In my little schooner I left the land and passed out into the middle of Baffin's bay, and the result proved the correctness of my judgment in that regard, for I crossed this "middle ice," a distance of more than 300 miles, in fifty-five hours—a voyage which has sometimes taken three months. On my return voyage I crossed the same bay before a gale of wind in forty-eight hours. I contend that a vessel can reach Smith sound without great or unusual danger. With two vessels, one might reach the mouth of Smith sound and land colonists. There I would leave the steam vessel at the harbor, and send the sailing vessel home with everybody on board that was not content to remain—the home-sick, the weary, the disheartened—and about half of them would be in the latter condition by the time they reached there, as I should judge from experience. Then I would start the steam vessel to the north if the season were not

too far advanced. The most favorable season is about from the 10th of August to the 10th of September. This would afford abundant time to plant the colony and start northwards with the steam-vessel. And here I will pause to make one slight criticism of Captain Howgate's plan. He proposes to enter Smith sound, and therein go directly to Lady Franklin bay, and make that the basis of his operations. Now, I do not regard it as altogether certain that you can reach Lady Franklin bay every year. * * * * I would make my base of operations the mouth of Smith sound, and after that Lady Franklin bay. The sailing vessel should go back to New York, and the next year bring out a new crew and cargo for the colonists. The sailing vessel could always reach them, and the expectation of her arrival would cheer the exiles, and sustain their courage through the dismal winter. The vessel would bring out new recruits. She would take home the sick and weary members of the party, and also the products of the hunt—the fur of the Arctic fox, of which we captured a great number; blubber from the seal, and walrus ivory, and seal skins and eider-down. We captured a considerable quantity of these. A good year, with skilled hunters, might yield $20,000 or $30,000 worth of valuable commodities. Perhaps the most important advantage of this plan would be the acquisition of new men every year. And here let me remark, as I go along, that no man, unless he be endowed with a peculiar ambition—unless his whole heart and purpose is in the achievement of a particular object, which will accomplish for him something "which the world will not willingly let die"—is good for anything after the first year. Captain Howgate must have new recruits every year. Nine men out of ten will be useless after twelve months have gone round, and one winter's campaign is over—that long, dreary arctic winter, when the sun never shines. We were at our harbor on Smith sound 125 days without seeing the sun. Nothing can be more disheartening and wearying than the gloom and solitude of that winter. Days and weeks come and go, and you look at nothing but a monotonous field of ice and snow; no new sounds greet the ear; you wake up each morning and meet the same countenances, and you grow weary, not only of yourself, but of everybody and everything around you. This creates discontent and dissatisfaction among the men. This feeling grew up among us everywhere, and it was

always productive of discord in the social circle; for all men have sharp angles of character that are very apt to make them objectionable. My experience, of course, has only been with a crew of men; with a shipload of women it might be different. [Laughter.]

"Science claims this expedition at the hands of the country, and of the Government. Let us send forth this colony of Captain Howgate's, equipped fully, and freely manned by officers of our own gallant navy, determined to perform this duty for the benefit of science, and the glory of their nation. Let us send them forth with a public opinion which will force the Government to provide an outfit, and let us have a cordial welcome for them when they return."